CLEANING LABORATORY EVALUATION SUMMARY

SCL #:	2007
DateRun:	10/23/2007
Experimenters:	Jason Marshall
ClientType:	Cleaner Manufacturer
ProjectNumber:	Project #1
Substrates:	Glass/Quartz, Plastic, Stainless Steel
PartType:	Coupon
Contaminants:	Greases, Dirt, Hucker's Soil
Cleaning Methods:	Manual Wipe
Analytical Methods:	Gravimetric
Purpose:	To evaluate supplied products for manual dish washing.
Experimental Procedure:	The supplied cleaning products were used at 0.25% made with tap water at 100 F. Preweighed stainless steel, plastic and glass coupons were coated with a 50/50 mix of SSL Soil 3 and 4. SSL 3 contains Hucker's Soil: Distilled water 45.8%, Evaporated milk 13.8%, Creamy peanut butter 9.2%, Salted butter 9.2%, Stone ground wheat flour 9.2%, Egg yolk 9.2%, Printer's ink with boiled linseed oil 0.9% and Saline solution 2.7 and SSL 4 contains Kitchen Soil: Crisco Shortening 35%; Maxwell House Slow Roast Coffee, 1 tsp/4 oz 25%; Lipton The Brisk Tea, 1 bag/4 oz 25%; Garelick Farms Half and Half 5%; Synthetic Carpet Soil Mix 10%. Contamination was done using a hand held swab. The soiled coupons were allowed to dry for 24 hours at room temperature. The contaminated coupons were weighed again to determine the amount of soil added. The three sets of coupons were immersed in each solution for 3 minutes and then three coupons were placed into a Gardner Straight Line Washability unit. A Kimberly-Clark WypAll X60 reinforced wipe was attached to the cleaning sled and soaked with the cleaning solutions. The cleaning unit was run for 20 cycles (~33 seconds). At the end of the cleaning, coupons were rinsed with tap water at 120 F for 15 seconds. Coupons were wiped once with a dry paper towel. Final weights were recorded. Efficiencies were calculated and recorded.
Results:	Three of four products removed over 70% of the combined all purpose & kitchen soil mix after soaking for three minutes and wiping for 30 seconds. The table lists the amount of soil added, the amount remaining, the efficiency for each coupon cleaned and the average removal from each substrate type.

Cleaner	Initial wt	Final wt	% Removed	Substrate Average
Dawn-ss	0.3484	0.2203	36.77	34.60
	0.3629	0.2719	25.08	
	0.1020	0.0592	41.96	
Dawn-pl	0.1332	0.0842	36.79	58.01
	0.1479	0.0374	74.71	
	0.2393	0.0897	62.52	
Dawn-gl	0.1344	0.0372	72.32	68.70
	0.2982	0.0879	70.52	
	0.1835	0.0674	63.27	
Meyer-ss	0.2175	0.0472	78.30	68.63
	0.1284	0.0407	68.30	
	0.0860	0.0350	59.30	
Meyer-pl	0.1994	0.0520	73.92	77.13
	0.0951	0.0146	84.65	
	0.1379	0.0375	72.81	
Meyer-gl	0.1107	0.0191	82.75	75.21
	0.0864	0.0343	60.30	
	0.1337	0.0233	82.57	
Seventh-ss	0.1459	0.0780	46.54	59.85
	0.1757	0.0486	72.34	
	0.0918	0.0361	60.68	
Seventh-pl	0.0795	0.0119	85.03	89.20

CLEANING LABORATORY EVALUATION SUMMARY

	0.2074	0.0087	95.81	
	0.0974	0.0129	86.76	
Seventh-gl	0.0561	0.0114	79.68	76.85
	0.0863	0.0144	83.31	
	0.1168	0.0379	67.55	
DFC-ss	0.2600	0.0500	80.77	70.44
	0.1481	0.0670	54.76	
	0.1573	0.0381	75.78	
DFC-pl	0.1545	0.0438	71.65	72.73
	0.0772	0.0193	75.00	
	0.1817	0.0517	71.55	
DFC-gl	0.1108	0.0176	84.12	80.40
	0.0621	0.0185	70.21	
	0.0915	0.0120	86.89	

Summary:

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Company Name:	Product Name:	Conc.:	Efficiency:	Effective:	Observations:
Procter & Gamble	Dawn Dish Detergent	0.25	53.77	☐	
Mrs Myers Clean Day	Mrs Meyers Glass Cleaner	0.25	73.66	☑	
Seventh Generation	Free & Clear Dish Liquid	0.25	75.30	☑	
Cogent Environmental Solutions	DFC Hand Dish Cleaner	0.25	74.52	☑	

Conclusion:

For the dish washing process, no established level for effectiveness has been set. Values obtained for each product were compared to the other products to determine relative performance. Three products had similar cleaning results, removing 73, 75 and 74%. The fourth product cleaned 53%.